FPPD-LL Database Entry: 0002

Lesson Info

- **Lesson Number:** FPPD-LL-0002
- **Lesson Date:** 06-jul-2000
- **Submitting Organization:** GSFC (400)
- **Submitted by:** Bryant Cramer

Subject/Title/Topic(s):

Budgetary Reserve Recommendation for Technology Validation Missions

Description of Driving Event:

The New Millennium Program's First Earth-Observing Mission (NMP/EO-1) was selected for flight in March 1996 and completed its Confirmation Review in May 1997. At the time of selection, the EO-1 Project had a 10% budgetary reserve. By the end of the Confirmation Review nearly 75% of this reserve was committed to additional mission definition, an overrun in one of the advanced technologies, and implementing four risk mitigation recommendations of the Confirmation Review Board. The Goddard Space Flight Center Program Management Council recommended that the EO-1 budget be augmented by 7.3% to restore the reserve committed during the definition process. After review, the Earth Science Enterprise provided the additional budget.

Lesson(s) Learned:

A 10% budgetary reserve is inadequate for a technology validation mission. The EO-1 experience suggests that 15% is a minimum and 20% would be preferred. Three characteristics peculiar to technology validation missions require this additional reserve. Accurately assessing the maturity of an advanced technology is very important. Considerable reserve can be quickly expended in maturing a technology to reach flight status consistent with the aggressive schedule typical of such missions. In a related way, using reserve to overcome whatever difficulties may be encountered in the fabrication of "first-time" flight hardware is another activity that can quickly consume considerable reserve. Lastly, the exact performance needed to effectively validate the advanced technology may not be fully understood until rather late in the definition process and this may increase the cost of the spacecraft.

Recommendation(s):

Future technology validation missions should carry a minimum budgetary reserve of 15% at the Confirmation Review.

Evidence of Recurrence Control Effectiveness:

Subsequent experience with other technology validation missions has indicated that this recommendation is appropriate for this class of missions.

Applicable NASA Enterprise(s):

Aeronautics and Space Transportation Technology
Earth Science
Space Science

Applicable Crosscutting Process(es):

Manage Strategically
Provide Aerospace Prods & Capabilities: Approval

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Additional Key Phrase(s):

Administration/Organization
Financial Management
Flight Equipment
Hardware
Policy & Planning
Spacecraft

Can this lesson be included in the International Safety Lessons Learned (ISLL) Database? Yes

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Lesson Date: 06 / 28 / 2000